For use with a city water system having a plurality of street water mains interconnected by branch water mains and having hydrants connected to the branch water mains, a city water flushing and sludge prevention apparatus consisting of: a sludge-prevention control valve insertable into a branch water main between two street water mains and closer to one of the two street water mains; the sludge-prevention control valve in the closed position preventing water from flowing through the branch water main from the closer street water main during a flushing operation, whereby all water flows through the branch water main from the more distant street water main and thereby flushes the portion of the branch water main between the sludge-prevention control valve and the more distant street water main; and a control mechanism adapted to close and open the sludge-prevention control valve.